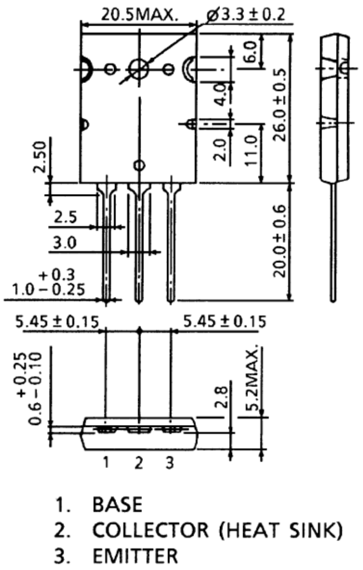
TOSHIBA Transistor Silicon PNP Triple Diffused Type

2SA1943

Power Amplifier Applications

Unit: mm



JEDEC	―
JEITA	―
TOSHIBA	2-21F1A

Weight: 9.75 g (typ.)

- High collector voltage: V_{CEO} = −230 V (min)
- Complementary to 2SC5200
- Recommended for 100-W high-fidelity audio frequency amplifier output stage.

Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	−230	V
Collector-emitter voltage	V_{CEO}	−230	V
Emitter-base voltage	V_{EBO}	−5	V
Collector current	I_C	−15	A
Base current	I_B	−1.5	A
Collector power dissipation (Tc = 25°C)	P_C	150	W
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	−55 to 150	°C

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings. Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook (“Handling Precautions”/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

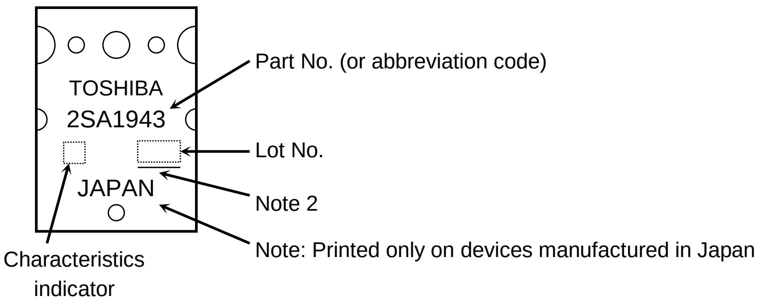
Start of commercial production
1994-09

Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	V_{CB} = −230 V, I_E = 0 A	—	—	−5.0	μA
Emitter cut-off current	I_{EBO}	V_{EB} = −5 V, I_C = 0 A	—	—	−5.0	μA
Collector-emitter breakdown voltage	$V_{(BR)\ CEO}$	I_C = −50 mA, I_B = 0 A	−230	—	—	V
DC current gain	$h_{FE\ (1)}$ (Note 1)	V_{CE} = −5 V, I_C = −1 A	55	—	160	
	$h_{FE\ (2)}$	V_{CE} = −5 V, I_C = −7 A	35	60	—	
Collector-emitter saturation voltage	$V_{CE\ (sat)}$	I_C = −8 A, I_B = −0.8 A	—	−1.5	−3.0	V
Base-emitter voltage	V_{BE}	V_{CE} = −5 V, I_C = −7 A	—	−1.0	−1.5	V
Transition frequency	f_T	V_{CE} = −5 V, I_C = −1 A	—	30	—	MHz
Collector output capacitance	C_{ob}	V_{CB} = −10 V, I_E = 0 A, f = 1 MHz	—	360	—	pF

Note 1: $h_{FE\ (1)}$ classification R: 55 to 110, O: 80 to 160

Marking

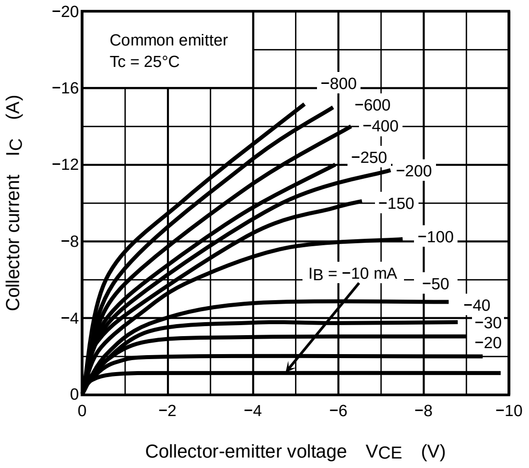


Note 2: A line under a Lot No. identifies the indication of product Labels.
[[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

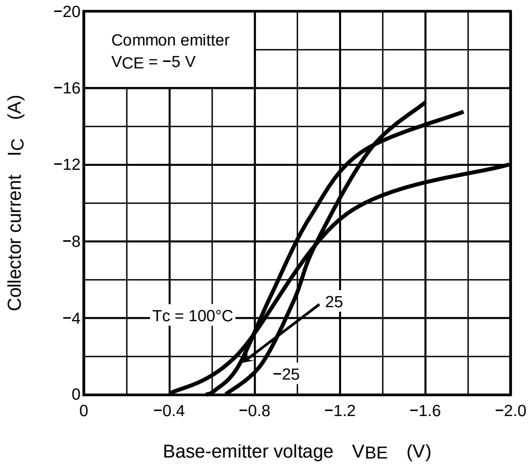
Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product.

The RoHS is the Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

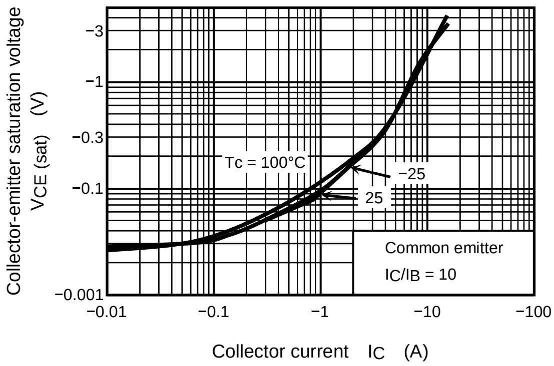
I_C – V_{CE}



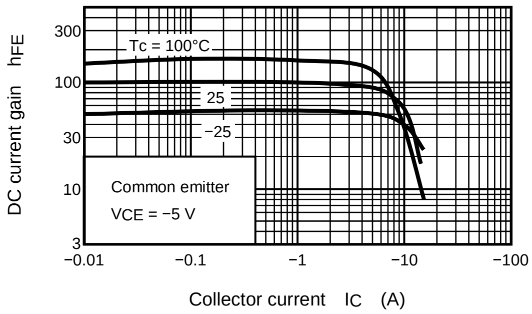
I_C – V_{BE}



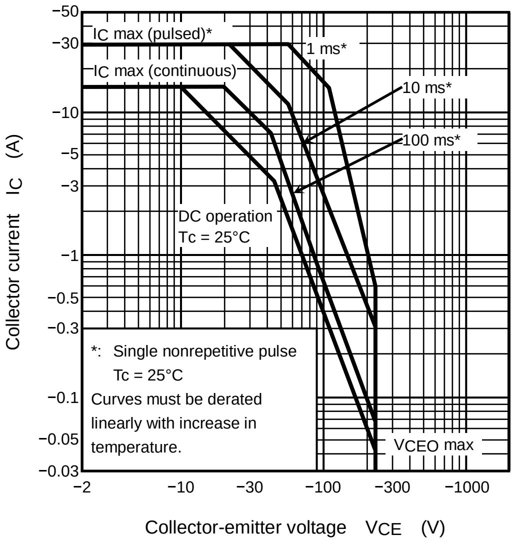
$V_{CE\ (sat)}$ – I_C

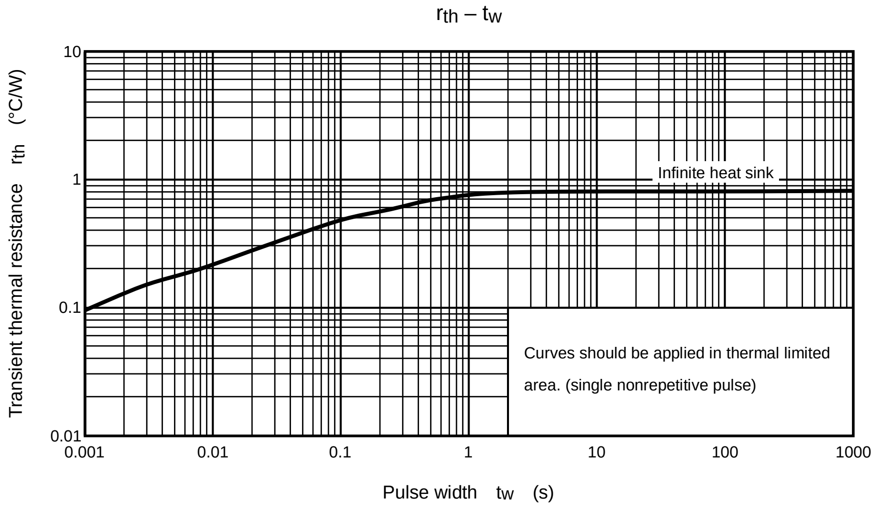


h_{FE} – I_C



Safe Operating Area




r_{th} – t_w
Transient thermal resistance r_{th} (°C/W)
10
1
0.1
0.01
0.001
0.01
0.1
1
10
100
1000
Pulse width t_w (s)
Infinite heat sink
Curves should be applied in thermal limited area. (single nonrepetitive pulse)

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